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HAWAIIAN ARCHAEOLOGY: AN HISTORICAL REVIEW

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Introduction

As a newcomer to Hawaiian archaeology, an expedient entry into the field seemed to be an analysis of what had been done to date. With this in mind, a bibliography was compiled of all available Hawaiian archaeological materials and as many of these as possible were read and indexed. It soon became apparent that many of the references were of unpublished research reports and extremely difficult to locate for study, existing in only one or two copies. A preliminary check of the available materials and of various annual reports also disclosed that archaeological research had evidently been conducted for which no report, published or unpublished, could be found. A thorough study of the bibliography items, annual reports, newspaper files, and personal questioning has led to a "reconstruction" of archaeological research done in Hawaii, by whom, and when. This information is presented in the appendix. The compilation of the bibliography and its indexing, in conjunction with the study of the research undertaken, has provided sufficient information for a general discussion of trends in Hawaiian archaeology throughout its course of development.

TRENDS IN HAWAIIAN ARCHAEOLOGY: 1900 to 1968

Hawaiian archaeology is here defined as those studies dealing with data of known provenience, but excluding materials from ethno-historical sources. It seems to have centred in its earliest phases around an antiquarian interest in the location, description, and study of the large stone structures in Hawaii. The major emphasis was on heiaus, the principal Hawaiian religious structure and the work was accomplished primarily by T. G. Thrum, W. T. Brigham, and J. F. G. Stokes in the first several decades of this century. A secondary early interest was the study of petroglyphs, and this interest has continued to the present in contrast to the intensive heiau studies which in the main died out by the 1920's. Stokes also exhibited an early interest in fish ponds and fish traps, but this is not again in evidence until the work of Catherine C. Summers in the 1960's.

After this early interest in locating and describing specific types of archaeological sites throughout the state had subsided, a period of major site surveys began. During the 1920's K. P. Emory,

J. G. McAllister, and Wendell Bennett were engaged in making general site surveys for the main islands. In the 1930's, A. E. Hudson, J. E. Reinecke, and W. M. Walker contributed to this major survey period by their work on Hawaii Island and Maui. Since that time no site surveys have been carried out on such a grand scale. In their place is an emphasis upon intensive surveys of smaller areas and this lasts to the present.

Sub-surface archaeology seems to have begun in Hawaii with small excavations by Stokes on Kahoolawe in 1913 and evidently was not again attempted until the late 1930's when K. P. Emory, Gordon T. Bowles, and John R. Porteus began a series of excavations on Oahu. Beginning with the 1950 excavation of the Kuliouou shelter on Oahu by K. P. Emory, the number of excavations has steadily increased through to the present. The Bishop Museum five-year Hawaiian archaeology programme of the 1950's was the primary impetus in establishing sub-surface archaeology in Hawaii. Its principal practitioners were Emory, and later Y. H. Sinoto, and William R. Bonk (Emory, Bonk and Sinoto 1959).

The sustaining force in Hawaiian archaeology has been the Bishop Museum, established in 1889 and virtually all major archaeological work in Hawaii until the 1960's was accomplished under its auspices. The University of Hawaii's Honolulu (Manoa) campus began to take part in 1939 and has continued sporadically up to the present when a strong programme in Hawaiian archaeology seems to be developing. The Hilo campus of the University, under the leadership of William R. Bonk, has been active since the late 1950's, while the National Park Service has financed research since the late 1950's and accomplished substantial work on its own on Hawaii Island in the 1960's. The Division of State Parks has recently become very active in both supporting and conducting archaeological research, primarily through the interest of Joseph Souza, Director, and Francis Ching, Staff Archaeologist.

It is interesting to follow the development of Hawaiian archaeology in a more specific manner using the statistical breakdown available through the bibliographical indexing. The number of written reports that deal with Hawaiian archaeology to mid-1968 number approximately two hundred. This is an approximation because additional references will very likely continue to turn up periodically. However, a firm figure of not less than 196 citations has been used for the following statistics. Figure 1 shows the total number of dated research reports, by decade, for the period of 1890 to 1968 (undated reports have been excluded). The graph shows a fairly steady increase, except for the war years, until the 1960's when a tremendous spurt begins so that by 1968 more than double the number of reports of the 1950's have been prepared.

A breakdown of the references on the basis of published/unpublished shows that about sixty per cent of the Hawaiian archaeological material is published while forty per cent is not. This does not include the research done for which no report was written or those cases where the "provenience" of a cited report can no longer be traced.

FIGURE 2

Unfortunately the unpublished material has little chance of eventual publication because of a long period of insufficiently funded publication outlets. A majority of the unpublished materials cover research conducted by the Bishop Museum and are on file there. The next largest source of unpublished reports is the National Park Service and their materials are on file at the headquarters of Hawaii Volcanoes National Park, Hawaii Island. Other unpublished materials are to be found on file in the Department of Anthropology, University of Hawaii (both Manoa and Hilo campuses), and the Division of State Parks. These unpublished materials present a special problem to the Hawaiian researcher for, while often essential to his research, they are often very difficult to obtain. As a result, references to them have tended to be forgotten and the materials disappear into obscure files. This is not conjecture, for in compiling information on research done in Hawaiian archaeology, numerous references were found of site surveys completed, excavations conducted, analyses begun, and manuscripts in preparation for which there seemingly exists no report, published or unpublished. All possibilities have not been exhausted, so it is possible that they will slowly turn up. Until they do, however, it is still possible for the Hawaiian specialist, and especially the newcomer, to unknowingly duplicate earlier work or to overlook a valuable reference.

After excluding reviews, a division of citations into those dealing primarily with one of two kinds of operations shows that the bulk (70 per cent) are concerned with data gathered by means other than excavation. Most of the remaining 30 per cent are based on recent excavations.



FIG. 2

FIGURE 3

This reflects the early and continuing interest in site surveys and the initial fluorescence of Hawaiian archaeology with numerous reports on heiaus, petroglyphs, and fish ponds.

These interests may be further seen in a breakdown of the references (excluding reviews) by category. The categories overlap one another in that many reports cover, for example, both petroglyph and heiau studies.



FIG. 3

FIGURE 4

In this breakdown the designation of citations as major analyses or synthesizing works is something of a subjective evaluation, but by almost anyone's tally would not be too far from the five per cent indicated. The excavations occurring since 1960 are not generally problem oriented, but rather conducted for teaching or salvage purposes. Few syntheses, for instance, can be expected from the series of discrete excavations conducted since 1960 on the order of those resulting from the Bishop Museum five year programme of the late 1950's.

Thus this analysis makes plain the great emphasis that has been placed on surface archaeology over excavations, of site surveys over single locality studies, and of heiau studies over other structural studies. Most materials are on the descriptive level with integrating and theoretical works accounting for only about five per cent of the total. Finally, about forty per cent of the studies remain unpublished and with little hope of eventual publication.

The overall stimulus to Hawaiian archaeology seems to have been in two directions: an early emphasis upon site surveys that has continued through to the present and aimed at locating and describing the sites of Hawaii; and an emphasis seemingly centred with Emory and later in Sinoto on the delineation of cultural affiliations of Hawaii with the rest of Polynesia and the establishment of the time of arrival of the Hawaiian migrants.

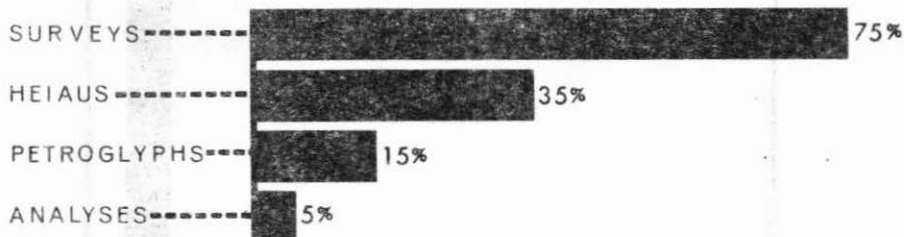
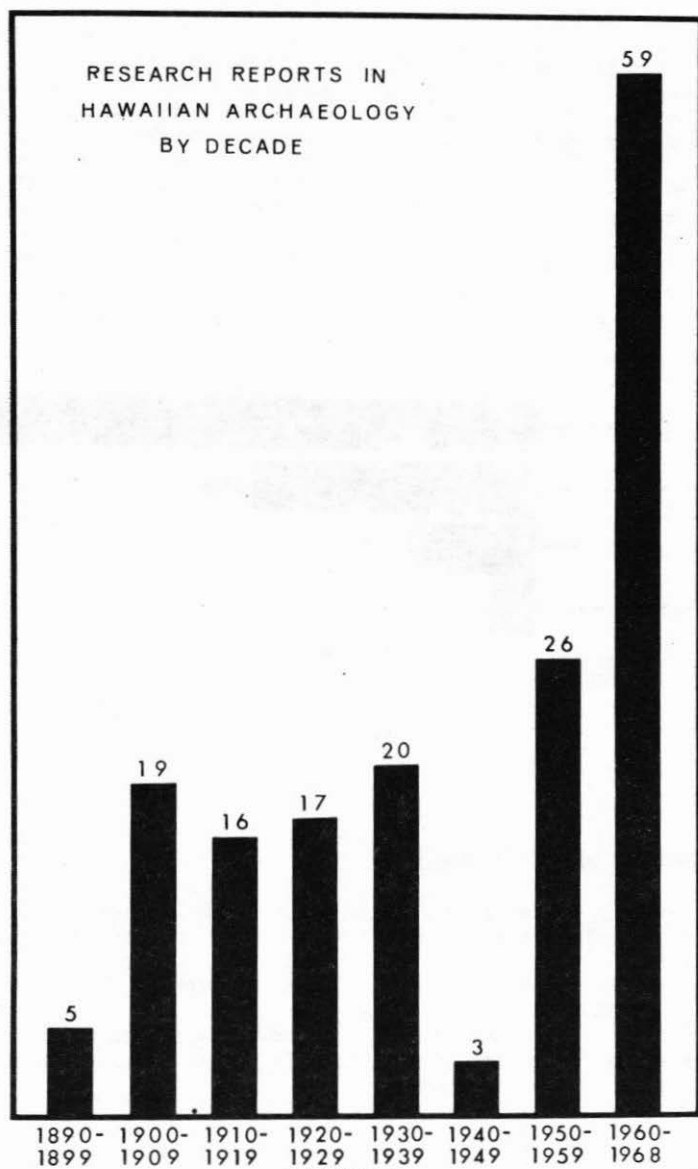


FIG. 4

THE FUTURE OF HAWAIIAN ARCHAEOLOGY

An emphasis on small scale site surveys and salvage archaeology will undoubtedly continue and projects involving historical sites will increase. Research plans are currently being formulated, however, by several institutions that attempt to push Hawaiian archaeology beyond the technological and ecological levels to dealing with prehistoric Hawaiian culture on the social level as well. And perhaps with these studies "archaeology as anthropology" will come to Hawaii as a fruition of these and many earlier studies.



APPENDIX

This appendix presents a history of what archaeological work has been done, by whom, and when. Compiled by using the sources in Hawaiian archaeology, annual reports, and personal interviews, it is probably reasonably complete, although additional references to previous work still do turn up occasionally.

- 1906 J. F. G. Stokes made a site survey on Hawaii Island (Brigham 1907).
- 1908 Stokes made a study of fish ponds and fish traps in the Pearl Harbour area of Oahu (Brigham 1909).
- 1909 Stokes made a site survey of heiaus on Molokai (Brigham 1910).
- 1910 Stokes continued site surveys on Molokai, primarily studying fish ponds and fish traps (Brigham 1911).
- 1911 Stokes made a site survey of fish ponds and fish traps on Kauai and Oahu and in addition studied petroglyphs while on Kauai (Brigham 1912).
- 1912 Stokes made a site survey to locate petroglyphs and heiaus on Niihau. He then went to Kauai to make notes on the fort on Mount Kahili (Brigham 1913).
- 1913 Stokes went twice to Kahoolawe for site surveys, making the first excavations in the Islands. He also surveyed Molokini and at three unnamed places at Maui (Brigham 1914).
- 1914 Stokes surveyed a burial cave on Oahu and with Dr Von Luschan of Berlin inspected a sand burial area near Waimanalo. Stokes later surveyed burial areas on Lanai (Brigham 1915).
- 1916 Thrum made a site survey on Maui for which he published materials in the Hawaiian Annual for 1917 (pp. 52-61).
- 1918 Thrum published a report on Maui heiau sites based on an earlier site survey by Stokes (Thrum 1918: 125-128).
- 1919 Stokes made a systematic study of the City of Refuge at Hanaunau, Hawaii Island from April to July (Brigham 1920).

- 1920 Robert T. Aitken and K. P. Emory made a site survey of ruins in Haleakala crater, Maui. Gerard Fowke made a four-month survey of Molokai and Hawaii Island (Brigham 1921: 8-11).
- 1921 Emory made an extensive site survey on Lanai (Brigham 1922).
- 1922 Herbert Gregory evidently made a ten-day reconnaissance of the NaPali, Kauai area (Gregory 1923).
- 1923 The Tanager Expedition to the northern Hawaiian Islands resulted in the discovery of ruins and artifacts on Necker and Nihoa Islands (Gregory 1924).
- 1924 Emory made three field trips to Hawaii Island and one to Maui. He served as archaeologist on the Tanager Expedition Trip "E", finishing the map of Nihoa begun in 1923. Nihoa and Necker were extensively surveyed for sites (Gregory 1925: 20).

One of Emory's trips to Hawaii Island was with Gregory and Charles Murphy. They made a reconnaissance of the Kohala coast including a survey of Waipio and Waimanu Valleys (Gregory 1925: 35).

- 1928 Emory and W. C. Bennett spent two weeks on Kauai studying heiaus and house sites. Bennett may have returned for a longer study of Kauai surface structures (Gregory 1929: 7).
- 1930 John E. Reinecke made a detailed site survey in the Kona district of Hawaii Island from June to August, especially at Keauhou, Kahaluu and Kaawaloa with a reconnaissance survey of portions of the coastal belt from Honaunau to Kailua (Gregory 1930: 9).
- J. Gilbert McAllister made a nine-month survey of Oahu (McAllister 1933: 3).

- 1931 McAllister and E. H. Bryan made a survey of Kahoolawe from February 12-20.

A manuscript on the archaeology of Maui is listed as being in preparation by Winslow M. Walker. No previous mention of this work was found and the date of the work is not known to me. It is, however, a fairly extensive site survey with the emphasis upon heiaus.

Alfred E. Hudson also had a manuscript in preparation on the archaeology of East Hawaii Island which is also a site survey.

Again, I have no information on when the survey was begun, but I assume it began in 1931 for it is discussed again in 1932 (Gregory 1932).

- 1932 Emory and Bryan made a survey of Kapua, on the Kona coast of Hawaii Island.
- Hudson spent the first half of the year completing his survey of the Hamakua, Kau, Puna, and Hilo districts of Hawaii Island (Gregory 1933: 8).
- 1933 Emory spent part of July and August in Kona, "where archaeological investigations commenced in 1932 were continued" (Gregory 1934: 7).
- In September, Emory visited Kauai and assisted the Kauai Historical Society in excavating the site of the royal birth stones at Waialua and in preparing plans for the restoration of the adjoining heiau (Gregory 1934: 8).
- 1936 Emory spent some time on Maui checking Walker's manuscript on the archaeology of Maui (Buck 1937).
- 1938 John Porteus, a student at the University of Hawaii discovered and began excavating the Kuliouou shelter on Oahu (Emory and Sinoto 1961: 3).
- The same reference states that the Mokapu Peninsula burial site was under excavation by the Bishop Museum and the University of Hawaii during 1938 (p. 3). The first mention of such excavations in the Bishop Museum Director's reports states they were conducted in 1939. The 1939 excavations may have been a continuation of work done, but unmentioned in 1938.
- 1939 Emory made a study of three burial caves in Kohala, Hawaii Island, where he found intact tapa.
- Gordon T. Bowles and Emory conducted excavations for a joint Museum-University study of the sand dune burial site at Mokapu (Buck 1940: 7).
- 1940 Excavations continued at Mokapu, Oahu, under the direction of Bowles and Emory (Buck 1941: 7).
- 1945 Emory made a field trip to Hawaii Island in September to investigate a long lava tube on the Shipman ranch at Keaau, finding it had been used as a shelter with artifacts being found in it (Buck 1946: 7).

- 1949 "Some archaeological work was done in the Kalalau Valley on Kauai with Dr Emory acting in an advisory capacity to a University of Hawaii group" (Buck 1950: 8).
- Emory also investigated more lava tube caves on the Shipman ranch.
- 1950 Emory and his class of University of Hawaii students completed an extensive excavation of the Kuliouou shelter begun by Porteus in 1938 (Buck 1951: 7).
- 1951 Emory and his students excavated a sheltered area below the cliffs at Hanauma Bay and began work in Makaniolu shelter across the valley from the Kuliouou shelter (Emory and Sinoto 1961: 3).
- 1952 Emory reported that 56 burials had been excavated on Oahu, mainly from Kailua but some were from Bellows Field and Kapapa Island in Kaneohe Bay. Work continued at the Makaniolu shelter and the Hanauma Bay shelter excavation was completed.
- William R. Bonk and a crew excavated eight sites on West Molokai. Emory examined ruins at Kahaluu and Honaunau, and visited the petroglyph area at Anaehoomalu, Hawaii Island (Bryan 1953: 9-10).
- 1953 Excavations were begun in Ulaula Cave at Kaunolu Village on Lanai by Hector G. Munro. Emory and Munro also inspected a refuge cave in Maunalei Gulch on Lanai.
- Henry P. Kekahuna and Theodore Kelsey were authorized by the Bishop Estate trustees to make a detailed inventory of ancient ruins and historical sites on the royal lands of North and South Kona. They mapped the sites along the Kahaluu and Keauhou shores, many inland sites including the great holua slide at Keauhou.
- Bonk was in charge of a crew which began excavations at South Point, Hawaii Island under the direction of Emory (Emory 1954: 5).
- 1954 The Bishop Museum began a five-year programme in Hawaiian archaeology under the direction of Emory. Emory and Bonk continued the excavations at South Point, Hawaii Island. Several sites were tested in the Kona district.
- During the fall, Emory continued the excavation of the Kuliouou shelter on Oahu with the assistance of his University students (Spoehr 1955).

1955 The South Point sites were further excavated during the summer by Bonk, Emory and Sinoto. Also during the summer an archaeological exploration was conducted in the South Kohala district which resulted in the discovery and mapping of some five acres of petroglyphs (in the Paniau region). A two-week excavation was conducted at the Haeleele Shelter on Kauai by the Kauai Historical Society under the supervision of Ivan and Dorothy Rainwater. Rainwater also obtained charcoal from Nihoa for the Museum (Spoehr 1956: 21-22).

Excavations were begun at the Kawekiu shelter on Oahu near the Makaniolu shelter (Emory and Sinoto 1961: 34).

1956 Excavations were completed for a cave at Waiahukini near South Point, Hawaii Island. Emory and his assistants made site surveys along the Kona coast, in the Kohala district, and on the summit of Mauna Kea. In addition, an archaeological survey on Maui was made and a large petroglyph field was found at Olowalu.

Charles E. Snow began a study of the skeletal material from Mokapu, Oahu (Spoehr 1957).

During the fall of 1956 the Bishop Museum with the co-operation of the University of Hawaii began an archaeological survey of the City of Refuge at Honaunau, Hawaii Island, for the National Park Service (Emory 1960: 5).

1957 The survey of Honaunau for the National Park Service continued into the spring (Emory 1960: 5).

1958 Excavations were begun by the Bishop Museum at Nualolo-kai, a shelter on the NaPali coast of Kauai, where cultural deposits reached a depth of eight feet (Emory 1960: 5).

Field surveys and excavations were made on Hawaii and Maui. The Kahiki-mui coast of Maui and the cliffs of Kealahue Bay and the Kau coast of Hawaii were explored. From January 28 to February 6 and from June 26 to August 16, excavations were conducted at Waiahukini, Kau and Holualoa, Kona on Hawaii Island.

Chandler Rowe supervised the restoration of the Kaleku heiau at Wailuku, Maui, for the Maui Historical Society. The work was accomplished by prison labour (Spoehr 1959).

1959 Excavations were continued at Nualolo-kai (Spoehr 1960).

In the summer of 1959, a site survey was made of the Kalapana

extension of the Hawaii Volcanoes National Park for the National Park Service. The survey covered 19 miles of coast and revealed large petroglyph fields and many stone structures (Emory 1960: 5).

- 1960 During July and August a three-week excavation was undertaken by the Museum to continue work at Nualolo-kai, Kauai (Spoehr 1961).
- 1961 Ground and aerial surveys were made of the area between La Perouse Bay and Kaupo in the Kahikinui region of East Maui. A detailed survey of the village ruins at Kawaa, Kau, Hawaii Island, was made by Lloyd Soehren. Soehren also made a survey of the Honokohau, Kona area for the Museum (Spoehr 1962: 14).
- 1962 Soehren made site surveys of Kaupulehu and Makalawena in North Kona, Hawaii Island, and at Haleakala on Maui. Soehren also conducted salvage excavations for the National Park Service at Honaunau, Hawaii Island. Emory re-examined sites in the Haleakala crater that he had reported on in 1922 and directed the excavation of two shelter caves there (Force 1964: 30).
- 1963 Extensive excavations at the City of Refuge National Historical Park, Honaunau, Kona, Hawaii, were begun for the Bishop Museum by Donald R. Tuohy under a National Park Service contract. Work began in July and continued through December with a crew of 25. Approximately 350 separate potential sites were excavated in various areas of the Park.

Soehren and Bonk with several University students excavated a small fisherman's shelter at Kaena Point, Oahu.

Dr Wilhelm G. Solheim II of the University of Hawaii led a crew of University students in the excavation of a small shelter cave in Maunaloa, Oahu.

Additional excavations were made at Puako, Hawaii Island, where Soehren tested in 1962. Colin C. Smart conducted the excavation.

In March and in April, Soehren helped the Bishop Estate to identify archaeological sites on estate lands at Kahuwai, Puna, Hawaii.

William Kikuchi and a group of volunteers made a site survey of a portion of the south shore of Kauai. Mrs Violet Hansen continued to conduct site surveys in Kau, Hawaii Island (Force 1965: 33-34).

The 1868 Alahaka Ramp at Honaunau, Hawaii Island, was excavated and reconstructed by Gordon Vivian of the National Park Service (Ladd 1965: 2).

1964 Archaeological work was completed at Nualolo-kai, Kauai (Emory 1965: 4).

A grant from the National Science Foundation was made to the Bishop Museum for work on an Hawaiian archaeological programme. The first project under this grant was a site survey of the area between Mahukona and Kawaihae, Kohala, Hawaii Island, done by Soehren.

Reconnaissance trips were made by helicopter on Kauai of the Wainuenue, Nualoloaina, and Awaawapuhi valleys near Nualolo-kai.

During September, Robert Bowen reconnoitered the shoreline and sand dunes from Poipu to Weoweonui near Mahaulepu on Kauai to determine the extent and condition of burials reported there.

Fieldwork for a survey of Hawaii Volcanoes National Park by Bonk and Smart, under the supervision of Emory, was carried out from June through August.

Bonk also made a detailed photographic record of the petroglyph field at Puuloa. Smart photographed petroglyph areas at Naulu, Kealakomowaena on the Kealakomo-Puuloa trail; Kahue, Apua Point; Ainahua, Poliokeawe Pali; and at Kuee. Two small test excavations were made, one in a cave shelter at Apua Point, and one in a small house site between Wilipea and Lae Apuki.

Bonk and Kikuchi began a study of the petroglyph fields at Puako, South Kohala under a Division of State Parks contract with Bishop Museum.

Soehren made a site survey in May of sites near the new Rockefeller Mauna Kea Beach Hotel just south of Kawaihae. Later in May he returned to undertake a detailed study and survey of the archaeological sites in that vicinity, resulting in the location of some 60 new sites (Force 1965: 32-34).

W. and D. Fredericksen began excavations in Lahaina, Maui, to find the "Brick Palace" of Kamehameha I (Fredericksen 1965: 1).

Patrick Kirch made a site survey in the Halawa Valley of Molokai (Kirch 1965).

Catherine Summers published through the Bishop Museum her report of fish ponds around the Island (Summers 1964).

1965 A site survey was conducted by Soehren and Emory of the upland area of Kahue, along the top of the Holei Pali, Hawaii Island.

Soehren conducted test excavations on Hawaii Island in the vicinity of Keauhou Landing at three sites (Smart, Emory, Soehren, and Ladd 1965).

Edmund J. Ladd, National Park Service, conducted a series of salvage excavations in Hawaii Volcanoes National Park, Hawaii Island (Ladd 1965C).

Ladd also excavated and stabilized the great wall at the City of Refuge at Honaunau for the National Park Service (Ladd 1958B). Ladd conducted salvage excavations at the 'Alealea Temple Site, also at the City of Refuge, Honaunau (Ladd 1965A).

Russell Apple published, through the Bishop Museum, his study of Hawaii Island trails (Apple 1965).

1966 Apple reported on the pre-restoration study of the Hale-o-Keawe platform at Honaunau Bay (Apple 1966).

Soehren studied the royal slide at Keauhou, Hawaii Island.

Apple and MacDonald made a site survey in the Honaunau area to determine the effect of sea level rise on archaeological features (Apple and MacDonald 1966).

Ladd conducted a salvage excavation at site C58 at the City of Refuge National Historical Park, Hawaii Island (Ladd 1966).

A University of Hawaii crew under the direction of Donn Bayard conducted excavations at site O-16 in the Hawaii-kai area of Oahu.

Richard Pearson led a crew from the University in excavations in a lava tube cave near Kalaupapa, Molokai.

Bishop Museum conducted salvage excavations in a burial complex near the Kahala Hilton Hotel on Oahu.

Peter Chapman made an extensive study of the pattern of settlement along the Kahikinui coast of East Maui.

1967 Pearson returned with a crew of students from the University of Hawaii to continue excavations at the Molokai cave site for a three-day study.

During the summer months, Pearson taught an archaeological field school and with his class conducted excavations at a habitation site at Bellows Field, Oahu.

Bonk made a site survey along the northwest coastal area of Kohala for the Division of State Parks.

Soehren conducted a site survey along the coast of Kohala from Mahukona to Kawaihae on Parker Ranch lands (Soehren 1967).

Ladd conducted archaeological salvage excavations for the City of Refuge by-pass and entrance roads (Ladd 1967).

Kirch made a reconnaissance survey and test excavations at Waihee and Waiehu, Maui (Kirch 1967).

Soehren conducted a site survey in the Kealakekua area of Hawaii Island (Soehren 1968).

Francis Ching of the Division of State Parks made a site survey on Kauai, centring on the Wailua River area.

1968 Soehren and T. Stell Newman completed and published a site survey of the Kealakekua bluff area, Hawaii Island, with funding from the office of the State Lieutenant Governor (Soehren and Newman 1968).

A site survey was made by Francis Ching (Division of State Parks) and Paul Rosendahl (University of Hawaii) of the Honokohau to Keahole Point section of the proposed Kailua-Kawaihae road on Hawaii Island (Ching and Rosendahl 1968). The survey was conducted for the Division of State Parks. At Honokohau Harbour salvage excavations were carried out by Ladd, Bonk and students from the Hilo campus of the University of Hawaii under a Bishop Museum contract with State Parks.

Extensive excavations during the summer were conducted at the fishing village of Koaie on the west coast of North Kohala by crews under Newman and Bonk. The Hilo campus summer field school

taught by Bonk was combined with the Manoa campus field school directed by Richard Pearson. Support through a contract with the Division of State Parks permitted application of maximum manpower and resources to the study of the village (Newman 1968).

Historical work began in the spring with excavations led by Pearson at the print shop of the Old Mission House in Honolulu, using students from the Manoa campus of the University of Hawaii.

Additional historical excavations were conducted in the fall by a crew under Michael Seelye of the University of Hawaii for the Division of State Parks on the grounds of Iolani Palace to determine the location of King Kalakaua's cottage.

A major site survey with a series of subsequent excavations is being conducted in the Makaha Valley of Oahu by E. J. Ladd and other archaeologists working under the supervision of R. C. Green, of the Bishop Museum, on a contract with the Makaha Historical Society, sponsored by Chin Ho, a well known Honolulu land developer, and his associates.

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CAVES AND SHELTER SITES AT VATUKOULA, FIJI

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These notes serve to put on record what is known at present about three sites in the Vaukoula area on Viti Levu, which is a short distance inland on the northern side of Viti Levu. The Vatukoula Basin lies at the foot and to the north of the high escarpment which borders the mountain region. There are numerous small creeks leading from the escarpment and side valleys into the basin itself. Many of these are reduced to a trickle in the dry season, and in some cases are completely dry. The following sites VL 1/16 and VL 1/17 were visited in 1964 when they were dry and were reached on horseback from Basala Estate, then occupied by the Mason family. The large defended cave VL 1/15 which is the third site described in these notes, lies halfway between Vatukoula and the Ba River, and possibly is linked with middle Ba Valley settlement in former times. As it was reached from Vatukoula on the occasion it was recorded by Eric Smit, it has been described as being in the general Vatukoula area for convenience only.

The first of the shelter sites (VL 1/16), like the other one, was situated some 200' below Nabotini trig station, and commands a fine view to the north and east over rolling hill country. It is within fifty yards of the Basala Stream and consists of a floor some 31 ft long and 19 ft wide, with a compacted narrow ledge as an extension of its outer margin (see Fig. 1). There is sufficient head-room at this point to stand upright, but at the inner level it is possible to crouch only. The floor comprises rock fragments which have become fire-shattered and mixed with dust and ashes, giving the whole a very black, dusty texture.